

In the Claims

1. (Original) A method of forming a ceramic material or body comprising the steps of:-
  - i) providing a water-containing mixture of raw materials
  - ii) forming said mixture into a shape
  - iii) removing water from said shape
  - iv) firing said shape at a temperature sufficient to effect sintering and/or reaction of the raw materials and thereby form a ceramic material or bodyin which the raw materials include a hygroscopic polymeric material capable of retaining water in the mixture over a range of temperatures above the boiling point of water.
2. (Original) A method as claimed in Claim 1, in which the hygroscopic polymeric material is present in the mixture in amounts less than 5% by weight of the dry ingredients.
3. (Original) A method as claimed in Claim 2, in which the hygroscopic polymeric material is present in the mixture in amounts less than 1% by weight of the dry ingredients.
4. (Currently Amended) A method as claimed in ~~any one of Claims Claim 1 to 3~~, in which the hygroscopic polymeric material has an absorbency of more than 5 grams of water per gram of material.
5. (Original) A method as claimed in Claim 4, in which the hygroscopic polymeric material has an absorbency of more than 10 grams of water per gram of material.

6. (Original) A method as claimed in Claim 5, in which the hygroscopic polymeric material has an absorbency of more than 100 grams of water per gram of material.

7. (Original) A method as claimed in Claim 6, in which the hygroscopic polymeric material has an absorbency of more than 200 grams of water per gram of material.

8. (Currently Amended) A method as claimed in ~~any one of Claims~~Claim 1 to 5, in which the hygroscopic polymeric material is a polyacrylate.

9. (Currently Amended) A method as claimed in ~~any one of Claims~~Claim 1 to 8, in which the hygroscopic polymeric material comprises a fine powder with 75% by weight or more of a size less than 150  $\mu\text{m}$ .

10. (Currently Amended) A method as claimed in ~~any one of Claims~~Claim 1 to 9, in which the raw materials include a carbonisable binder.

11. (Original) A method as claimed in Claim 10, in which the carbonisable binder is a sugar-based binder.

12. (Original) A method as claimed in Claim 11, in which the sugar-based binder comprises a mixture of a syrup and a starch.

13. (Currently Amended) A method as claimed in ~~any one of Claims~~Claim 1 to 12, in which the raw materials include silicon carbide and graphite.

14. (Original) A method as claimed in Claim 13, in which the ceramic body is a crucible.

15. (Original) Use as a component of a raw material mixture used in the production of a ceramic, of a hygroscopic polymeric material to retain water in the mixture over a range of temperatures above the boiling point of water.

16. (Original) A raw material mixture, used in the production of a ceramic, including a hygroscopic polymeric material capable of retaining water in the mixture at a range of temperatures above the boiling point of water.

17. (Original) A raw material mixture as claimed in Claim 16, in which the hygroscopic polymeric material is present in the mixture in amounts less than 5% by weight of the dry ingredients.

18. (Original) A raw material mixture as claimed in Claim 17, in which the hygroscopic polymeric material is present in the mixture in amounts less than 1% by weight of the dry ingredients.

19. (Currently Amended) A raw material mixture as claimed in ~~any one of Claims~~ Claim 16 to 18, in which the hygroscopic polymeric material has an absorbency of more than 5 grams of water per gram of material.

20. (Original) A raw material mixture as claimed in Claim 19, in which the hygroscopic polymeric material has an absorbency of more than 10 grams of water per gram of material.

21. (Original) A raw material mixture as claimed in Claim 20, in which the hygroscopic polymeric material has an absorbency of more than 100 grams of water per gram of material.

22. (Original) A raw material mixture as claimed in Claim 21, in which the hygroscopic polymeric material has an absorbency of more than 200 grams of water per gram of material.

23. (Currently Amended) A raw material mixture as claimed in ~~any one of Claims~~ Claim 16 to 22, in which the hygroscopic polymeric material is a polyacrylate.

24. (Currently Amended) A raw material mixture as claimed in ~~any one of Claims~~ Claim 16 to 23, in which the hygroscopic polymeric material comprises a fine powder with 75% by weight or more of a size less than 150µm.

25. (Currently Amended) A raw material mixture as claimed in ~~any one of Claims~~ Claim 16 to 24, including a carbonisable binder.

26. (Original) A raw material mixture as claimed in Claim 25, in which the carbonisable binder is a sugar-based binder.

27. (Original) A raw material mixture as claimed in Claim 26, in which the sugar-based binder comprises a mixture of a syrup and a starch.

28. (Currently Amended) A raw material mixture as claimed in ~~any one of Claims~~Claim 16 to 27, including silicon carbide and graphite.

29. (Original) A binder for a ceramic, comprising one or more reactive components to provide a fired bond in the ceramic, and a hygroscopic polymeric material.

30. (Original) A binder, as claimed in Claim 29, in which the hygroscopic polymeric material has an absorbency of more than 5 grams of water per gram of material.

31. (Original) A binder, as claimed in Claim 30, in which the hygroscopic polymeric material has an absorbency of more than 10 grams of water per gram of material.

32. (Original) A binder, as claimed in Claim 31, in which the hygroscopic polymeric material has an absorbency of more than 100 grams of water per gram of material.

33. (Original) A binder, as claimed in Claim 32, in which the hygroscopic polymeric material has an absorbency of more than 200 grams of water per gram of material.

34. (Currently Amended) A binder, as claimed in ~~any one of Claims~~Claim 29 to 33, in which the hygroscopic polymeric material comprises a polyacrylate.

35. (Currently Amended) A binder, as claimed in ~~any one of Claims~~Claim 29 to 34, in which the reactive components include a carbonisable material.

36. (Original) A binder, as claimed in Claim 35, in which the carbonisable binder is a sugar-based binder.

37. (Original) A binder, as claimed in Claim 36, in which the sugar-based binder comprises a mixture of a sugar syrup and a starch.

38. (Original) A binder, as claimed in Claim 37, in which the sugar syrup has a solids content of greater than 70%.

39. (Original) A binder, as claimed in Claim 38, in which the sugar syrup has a carbon content as assessed by TGA of above 10% by weight.

40. (Original) A binder, as claimed in Claim 39, in which the sugar syrup has a carbon content as assessed by TGA of above 15% by weight.

41. (Currently Amended) A binder, as claimed in ~~any one of Claims~~Claim 35 to 40, providing a carbon yield when carbonised of greater than 20%.

42. (Original) A method of forming a ceramic article by the steps of forming a green body and firing the green body at a temperature sufficient to carbonise a carbonisable binder in the green body, in which the carbonisable binder comprises a sugar syrup and a carbonaceous additive increasing the carbon yield of the binder upon firing.

43. (Original) A method as claimed in Claim 42, in which the carbonaceous additive is a starch.

44. (Currently Amended) A method as claimed in ~~any one of Claims~~Claim 42 to 43, in which the carbonisable binder has a carbon yield of greater than 20%.

45. (Currently Amended) A method as claimed in ~~any one of Claims~~Claim 42 to 44, in which the sugar syrup has a solids content of greater than 70%.

46. (Currently Amended) A method as claimed in ~~any one of Claims~~Claim 42 to 45, in which the ash content of the sugar syrup is less than 5%.

47. (Original) A method as claimed in Claim 46, in which the ash content of the sugar syrup is less than 1%.